EOS CLIMATE™

January 5, 2010

RE: *Preliminary Draft Regulation for a California Cap-and-Trade Program*

Dear Sir or Madame:

EOS Climate is developing projects in the U.S. and globally for collection and destruction of ozone-depleting substances (ODSs) that remain in older equipment and building infrastructure. Our comments on the Preliminary Draft Regulation (PDR) are confined to related concepts introduced in "Subarticle 13, Offset Credits".

Role of ARB in the Offset Market

The PDR raises the question of whether ARB, as administrator of an offsets system, should become a "credit issuing body" for offset credits. As a project developer, we want the maximum amount of standardization and oversight in an offsets system that would insure the highest quality credits. We believe that ARB can provide such oversight. However, we also believe ARB should retain the option to delegate responsibility to an external organization to be a credit issuing body. This would provide ARB with flexibility to determine the most cost-effective implementation strategy. ARB should specify in rulemaking the criteria that any external organization must meet to be considered a credit issuing body. For example, having a demonstrated track record and transparent process for development and approval of quantification methodologies, approving projects for registration, overseeing monitoring and recordkeeping activities, reviewing verification statements from third-party verifiers, and training and auditing third-party verifiers.

Ozone-Depleting Substances

<u>ODS Destruction as an "Additional" GHG Reduction</u>

The PDR notes that ODSs were not "mentioned in AB 32". The reason for this exclusion is primarily because ODSs do not fall into the "basket" of greenhouse gases covered by the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. The UNFCCC did not include ODSs in the "basket" of greenhouse gases because they are already regulated under the Montreal Protocol.

In determining whether destruction of ODSs would meet the criterion for additionality, it is important to recognize that the Montreal Protocol controls only *production* of ODSs. While the phase-out schedules established by the Montreal Protocol and its amendments have significantly reduced atmospheric concentrations of these substances, establishing a path towards recovery of the stratospheric ozone layer, the Protocol **does not directly control emissions of ozone depleting substances that were produced prior to their phase-out deadlines.**

Millions of tons of ODSs manufactured prior to their phase-out deadlines are contained in refrigeration, air conditioning, fire suppression equipment, insulation foam in appliances and buildings, and other stockpiles and products not yet released to the atmosphere, referred to as "ODS banks" (see discussion below). Ultimately, all of these substances will be released to the atmosphere unless they are collected and destroyed. There are no requirements under the Montreal Protocol for these banks to be collected and destroyed before they are emitted.

In the U.S., ODSs are controlled under Title VI of the Clean Air Act. Sections 604 and 605 contain phase-out schedules for class I and class II substances, and Section 606 gives authority to EPA to accelerate these schedules. The phase-out deadlines and EPA's allowance program, apply to production, import, and export. As with the Montreal Protocol, the phase-outs *do not* apply to emissions of ODSs that were manufactured or imported prior to the phase-out deadlines.

Other provisions do provide partial control over ODS refrigerant emissions. Section 608(c) of the Act prohibits intentional venting of refrigerant, and EPA regulations promulgated under Section 608 have set allowable leak rates from large commercial/ industrial refrigeration, and air conditioning equipment. ARB has recently adopted more stringent leak repair requirements for these sources. Other regulations under Sections 608 and 609 specify requirements for how refrigerants are recovered from stationary and mobile equipment.

Even if these regulations are being complied with (which has been questioned by both U.S. EPA and the industry), their combined effect is only to slow the rate at which ODS refrigerants are emitted.

There are no provisions in the Clean Air Act to control emissions of ODSs, still in use in other applications, most notably insulation foam in appliances and buildings, and fire suppression systems.

We believe there are a number of reasons why ARB should include ODS destruction as an eligible project category for compliance offsets:

<u>ODS Banks Represent an Immediate Climate Threat</u>

As noted in the PDR, ODSs not only damage stratospheric ozone, they are also greenhouse gases (GHGs), up to 11,000 times more potent than CO_2. Large quantities produced prior to phase-out deadlines remain in use in older appliances and buildings. Under business-as-usual, these banks will be released to the atmosphere, which could otherwise be recovered and destroyed with proper incentives.

The Montreal Protocol Technology and Economic Assessment Panel and IPCC estimate that global ODS banks (not yet emitted into the atmosphere) represented the equivalent of 21.2 billion tons of

CO2 (CO2eq) in 2002, and approximately 18 billion tons of CO2eq today[1]. Of this total, the "reachable banks" of CFCs, HCFCs, and halons are estimated to represent approximately 8.8 billion tons of CO2eq. Much of this reachable ODS is expected to be lost to the atmosphere relatively quickly; the 2005 IPCC/TEAP report projected that by 2015, more than 6 billion tons of CO2eq will be emitted as CFC and HCFC refrigerants leak from older equipment.[1]

Destruction of ODS Banks Can Provide an Immediate Source of High Quality, Cost-Effective GHG Emission Reductions

ODS destruction is a verifiable event capable of delivering high quality carbon offsets that meet the criteria for "additionality" and permanence of GHG reductions. Projects can be implemented quickly, on the order of months. ODS banks can be collected and destroyed using technologies and infrastructure currently available. In the U.S., older refrigerators can be disassembled to recover CFC refrigerant, and the insulation foam can be separated to extract CFC or HCFC agents in accordance with industry standards. The U.S. has an established network for recovery and recycling of refrigerants and halons from commercial and residential equipment. Once collected, ODSs can be transported for processing in rotary kiln incinerators, cement kilns, waste-to-energy facilities, plasma arc, and other highly regulated destruction technologies, with removal efficiencies above 99%. Remaining ODS banks in less accessible sources, such as insulation foam in buildings, are more stable and less prone to rapid leaking.

After accounting for the global warming potential and level of effort required for different sources of ODS banks, TEAP estimated that average costs to separate, collect, and destroy "low" and "medium" effort sources of refrigerants in developed countries would range between US $8 and $16 per ton of CO2eq, and up to more than $30 in developing countries[2]. These costs are comparable, and for the low effort sources, well below the cost of abatement for the majority of greenhouse gas reduction measures[3]. Foam recovery and destruction costs are estimated to be significantly higher, ranging from less than $10 to more than $50 per ton of CO2eq by 2015, even for the most accessible foams in domestic refrigerators.[2]

Use of Carbon-Financing to Address ODS Banks

Beginning in 2008, the Parties to the Montreal Protocol began to review options on funding mechanisms for management of ODS banks. In their 2009 report, the TEAP Task Force on ODS Bank Management has concluded that the level of financing that would be required for management and destruction of ODS banks would far exceed the capacity of multilateral funding,

[1] Intergovernmental Panel on Climate Change, Technology and Economics Assessment Panel, "IPCC/TEAP Special Report on Safeguarding the Ozone Layer and the Global Climate System: Issues Related to Hydrofluorocarbons and Perfluorocarbons" (2005).

[2] UNEP Technology and Economic Assessment Panel, Task Force Decision XX/7 – Final Report, *Environmentally Sound Management of Ozone-Depleting Substances,* (November 2009)

[3] Pathways to a Low-Carbon Economy: Version 2 of the global greenhouse gas abatement cost curve", McKinsey & Company (January 2009)

and that some level of carbon financing would be required.[2]

Voluntary carbon markets that commercialize GHG emission reductions outside government mandated programs have taken the lead in spurring development of protocols, verification systems, infrastructure, and financing. However, the size of global ODS banks far exceeds the capacity of voluntary carbon markets alone to create enough incentive for collection and destruction of ODS. The Montreal Protocol TEAP, World Bank, the UNDP, and other parties are examining options on how carbon financing, including national and sub-national cap-and-trade systems can rapidly address ongoing emissions from ODS banks. In parallel, the Montreal Protocol Multilateral Fund is initiating pilot projects on ODS destruction, using a combination of both direct grant funds as well as leveraging carbon financing.[4]

California's Leadership Opportunity

The American Clean Energy and Security Act of 2009 that passed the House of Representatives in June 2009 recognizes the climate benefits of destroying ODSs by allowing the U.S. Environmental Protection Agency (EPA) to allocate additional allowances for production and import of HFCs (non-ozone depleting substitutes for CFCs) in exchange for destruction of CFCs. This is an important step, but demand for additional HFCs will represent an extremely small fraction of the total U.S. ODS bank[5]. Thus, the bill in its current form would not substantially slow ongoing, preventable release of CFCs and other ODSs.

Instead, making ODS destruction eligible under AB 32 as a GHG offset under general cap-and-trade provisions available to regulated businesses would expand the pool of financing available to prevent these emissions, while establishing a model for regional climate initiatives (i.e., WCI, RGGI), and ultimately, national and international programs. ODS destruction could rapidly scale to generate tens of million tons /yr of carbon abatement by 2015, providing a much needed source of near-term reductions that would help contain overall costs to the economy.

Quantification Methodologies Will be Available for ARB Adoption

The Chicago Climate Exchange first adopted rules for issuing GHG reduction credits for ODS destruction. In December 2008, EOS Climate submitted a comprehensive Methodology for Destruction of ODS in December 2008 to both the Climate Action Reserve (CAR) and the Voluntary Carbon Standard to jumpstart the voluntary and ultimately the compliance carbon

[4] United Nations Environment Programme, *Report of the Twenty-First Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer* (November 2009)

[5] Any allowances for additional HFC production or import would be a percentage of the baseline, which will be in the range of 280 to 380 $MMTCO_2eq$. Assuming: a) a baseline of 330 $MMTCO_2eq$; and b) that EPA would authorize production and import for an additional 10% on an annual basis, expected demand for CFC destruction offsets would be on the order of 30 $MMTCO_2eq$, which we estimate to be at least two orders of magnitude less than total U.S. ODS banks (e.g., assuming that U.S. ODS banks are 25% of total global banks or 4-5 $GtCO_2eq$.

markets to address the ongoing threat that ODS banks pose to the climate system and to the stratospheric ozone layer. Our methodology was peer reviewed and determined to be in adherence to ISO 14064-2.

CAR and VCS began developing eligibility criteria and project protocols for ODS destruction in 2009, expected to be finalized in early 2010. We anticipate that the CAR protocol when approved, following an extensive and transparent consultation process, will result in a technically sound protocol that insures GHG credits of the highest quality that will provide ARB with a quantification methodology for review and adoption.

ODS Destruction Has Multiple Co-Benefits

Eliminating banks of ODS that have been phased out of production would prevent significant greenhouse gas emissions as well as reduce continuing damage to the earth's stratospheric ozone layer. In addition, creating incentives to recover and destroy CFCs and other phased out ODSs from older equipment would accelerate the transition to more advanced, energy efficient technologies, and thereby reduce power plant emissions. Further, ODS destruction programs, and a faster transition to newer technologies, would create new jobs in waste handling/recycling and manufacturing.

Any potential for "leakage" associated with ODS destruction is minimal; the EOS and CAR quantification methodologies account for any increased use of HFCs or other high GWP gases in replacement technologies.

Where Should California Issue Offset Credits?

Projects conducted outside the U.S. will in general be subject to more uncertainty regarding local regulatory controls and verifiability. For ODS destruction projects, however, there would be equivalent certainty regarding monitoring, permanence, addtionality, and verifiability regardless of whether the project was conducted in California, elsewhere in the U.S. or North America, or abroad, provided that there is adherence to a consistent methodology and technologies that meet strict standards.

In the near term, there would likely be no ODS destruction in California. Waste-to-energy plants in California have been incinerating polyurethane foam containing CFCs in accordance with Montreal Protocol standards. Foam destruction at these California facilities has been part of at least one project that has generated greenhouse gas credits for the voluntary carbon market. However, it is possible that the CAR protocol for ODS destruction projects will not include provisions for incineration of intact insulation foam, removed from appliances and buildings, containing CFCs and HCFC blowing agent.

At present, there are no hazardous waste incinerators, rotary kilns, cement kilns, or other facilities in California that destroy ODSs themselves. It is expected that most ODSs that are

recovered from refrigeration and air conditioning equipment or other sources in the U.S., or that are imported into the U.S., will be destroyed at RCRA-permitted facilities outside of California.

We suggest that rather than exclude projects based solely on geographic location, that the regulations allow for credits to be issued for projects outside California, or the U.S., provided that the projects conform to the same or equivalent methodologies established by the same standard-setting organization or the same process identified in Subarticle 12 and other relevant sections of the regulation.

Conclusion

Banks of ODS represent a potential source of emissions that would undo much of the climate protection already achieved by phasing out production of these chemicals. There is a relatively brief window of time in which to address this issue, as most easily reachable ODS banks, under business as usual, will be released to the atmosphere over the next 5-10 years.

By allowing creation of offsets from verified destruction of ODSs that have been phased out of production but not yet released to the atmosphere, with clear additionality and incentives for advanced replacement technologies that avoid substitution of ODSs by other GHGs, destruction projects would be rapidly mobilized. We believe this is a relatively straightforward policy step that would permanently remove a major threat to ozone and climate, accelerate the transition to more efficient technologies, and reduce overall costs of a cap-and-trade program.

Sincerely,

Jeff Cohen,
Senior Vice President, Science & Policy